THE OHIO STATE UNIVERSITY

1992 PRESIDENT'S REPORT

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We are an institution with the courage to change and the will to improve.

What will not change is our role as a land-grant university in advocating on behalf of the people, remaining close to them, and responding to their changing needs.

What will not change is our obligation to provide an educated, thoughtful, and increasingly competitive work force and to fuel economic progress by transferring knowledge to the workplace.

What will not change is the mandate for this university to give shape to our nation's promise of democracy, of opportunity for all to fulfill their aspirations.

We must give to our students the best tool of freedom: education.

E. Gordon Gee

Addressing The Ohio State University Senate

September 28, 1991

Never in our history—not even during the land-grant movement of the 1860s—have the American people asked more of their colleges and universities than they do today. That the 20th century was the "American century" is undeniable. Whether the 21st century can be ours will test the capacity of education, industry, labor, and government to work with common will and common purpose.

That will and purpose, I believe, can best be forged into action when there is public understanding of what universities mean to our daily lives and public trust that the goals of the university and the goals of the people are one and the same.

Within these pages are 10 stories about Ohio State and the people we serve. Some spring from my own experiences as I traveled our state in 1991 to meet Ohio State people at work and to assess what more we could accomplish for the citizens of Ohio in 1992. Alone and in combination they exemplify Ohio State's unique and substantial contributions to our society and our economy.

On the grand scale, Ohio State, like all major universities, at once reflects the larger culture and the leading edge of social and scientific change. But it is on the human scale that such relationships and accomplishments can be best understood.

When I ask myself for the most basic measure of the success of Ohio State, my answer is "the confidence of the people of Ohio." It is a confidence that must be earned each day. I hope that this report enhances your confidence that together we at Ohio State and you, a friend of Ohio State, can build a better tomorrow for Ohio and America during each day of 1992.

E. Gordon Gee

YOUNG SCHOLARS PROGRAM: A FORMULA FOR SUCCESS. Eric Rollins is going places. Like any seventh-grader, he is on his way to the movies and the mall. But as part of a special Ohio State program, Eric is going much further—all the way to college.

The 14-year-old Clevelander is in the midst of his second year as a Young Scholar, participating in an Ohio State program designed to increase minority enrollment in Ohio's colleges and universities.

"It's been a great thing for him," says Kathleen Rollins, Eric's mother. "He's always been smart, and he used to feel like an outcast among his classmates. Now he can hang out with kids who are similar to him. It keeps him in a much better frame of mind about school."

Eric agrees. "So far it's been a wonderful experience and opportunity. We've gone to a lot of nice places and participated in some interesting cultural programs. We just saw a play about African folk tales, and we're going to see another one next month."

He is especially enthusiastic about the institutes that are held on the Ohio State campus for two weeks each summer. Young Scholars are obliged to attend these sessions, which provide the youngsters with a variety of academic, personal, and career-oriented activities. "I've enjoyed becoming familiar with the campus and interacting with other kids from all over the state. It gives you a chance to see what going to college might be like."

College has always been part of Eric's agenda, but he was worried his mother might not be able to send him. "It was my sixth-grade teacher, Mrs. Craven, who thought I would be interested in the Young Scholars Program. She told my mom about it, and we thought it was a great idea." He received an invitation to participate in the program in 1990 along with 70 other Cleveland sixth-graders from low-income families. There are now 240 Young Scholars in the Cleveland area and 1,400 in nine urban areas across the state. Young Scholars must remain in the program through high school graduation and are guaranteed admission and a scholarship to The Ohio State University, although they can attend another institution.

Eric now attends Whitney Young Intermediate School in Cleveland, where there are several other Young Scholars in his class. "No one bugs me about being a Young Scholar," he says. "In fact, a lot of my classmates wish they could be one, too.
I hope my little sister, who is 10 years old and very smart, has the opportunity to be in this program. I'd recommend it to anyone."

The college preparatory curriculum that Young Scholars must take doesn't faze Eric. "I've always been able to depend on him to do his homework. He knows it comes first, before basketball or Nintendo," says Kathleen Rollins. "I thought I was smart when I was in school, but with all this new stuff, there's a lot I can't help him with. I just direct him to a book or an encyclopedia. Both Eric and his sister know how to apply themselves."

Eric knows that his ambition to become an engineer with a Fortune 500 company requires intensive studying. "The Young Scholars people are a little strict on brains," he admits, "but I can cope with it. The staff are nice people, and they are there when you need them."

The Young Scholars Program is very much an investment in the future, making a difference in these youngsters' lives that will last a lifetime.

Young Scholars Program administrator James Bishop visits with Summer Institute participants.

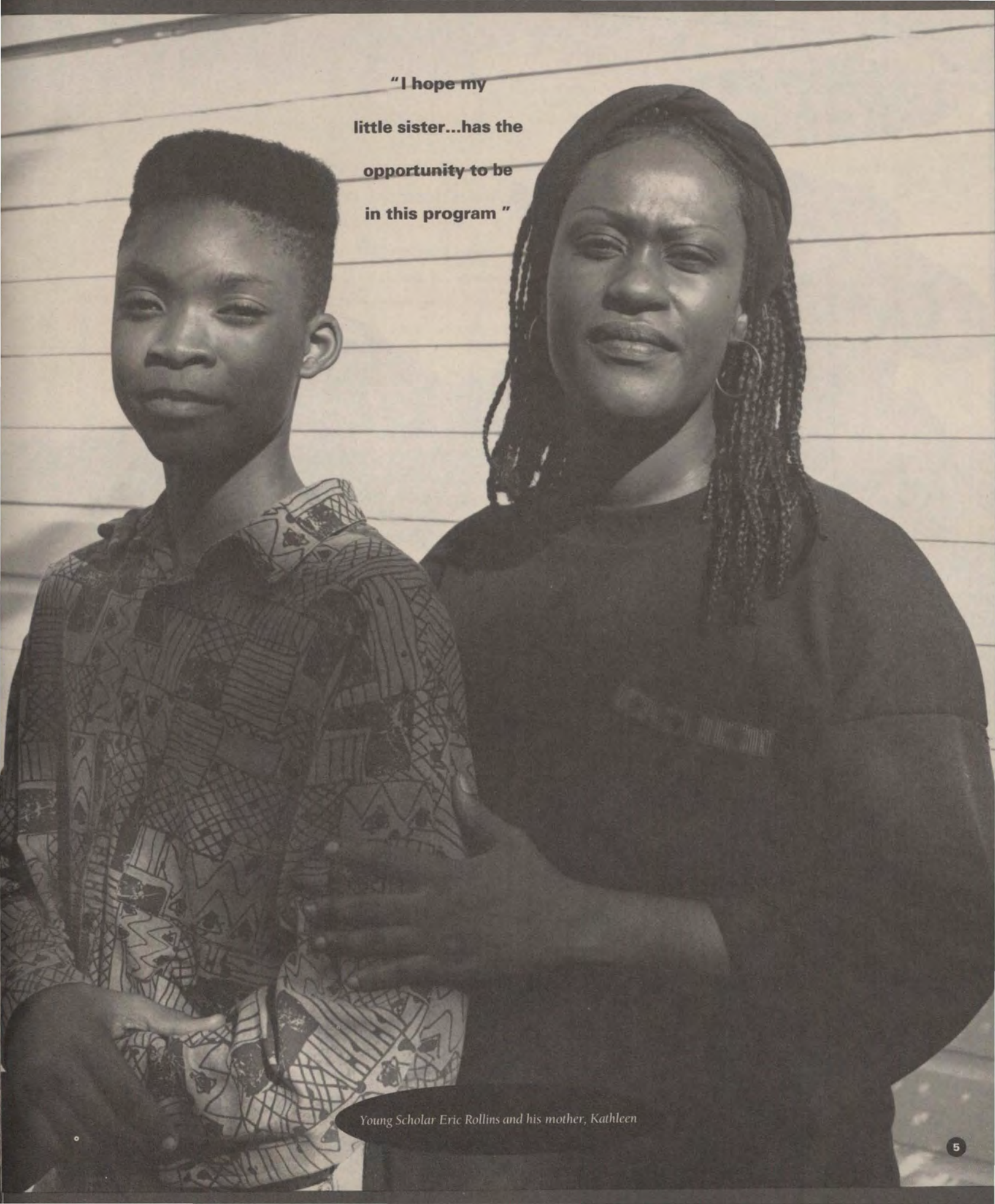
PROGRAM HELPS CHILDREN ACHIEVE ACADEMIC SUCCESS AND WORK TOWARD COLLEGE

While many people were only talking about the problem of declining minority enrollment, Ohio State began doing something about it.

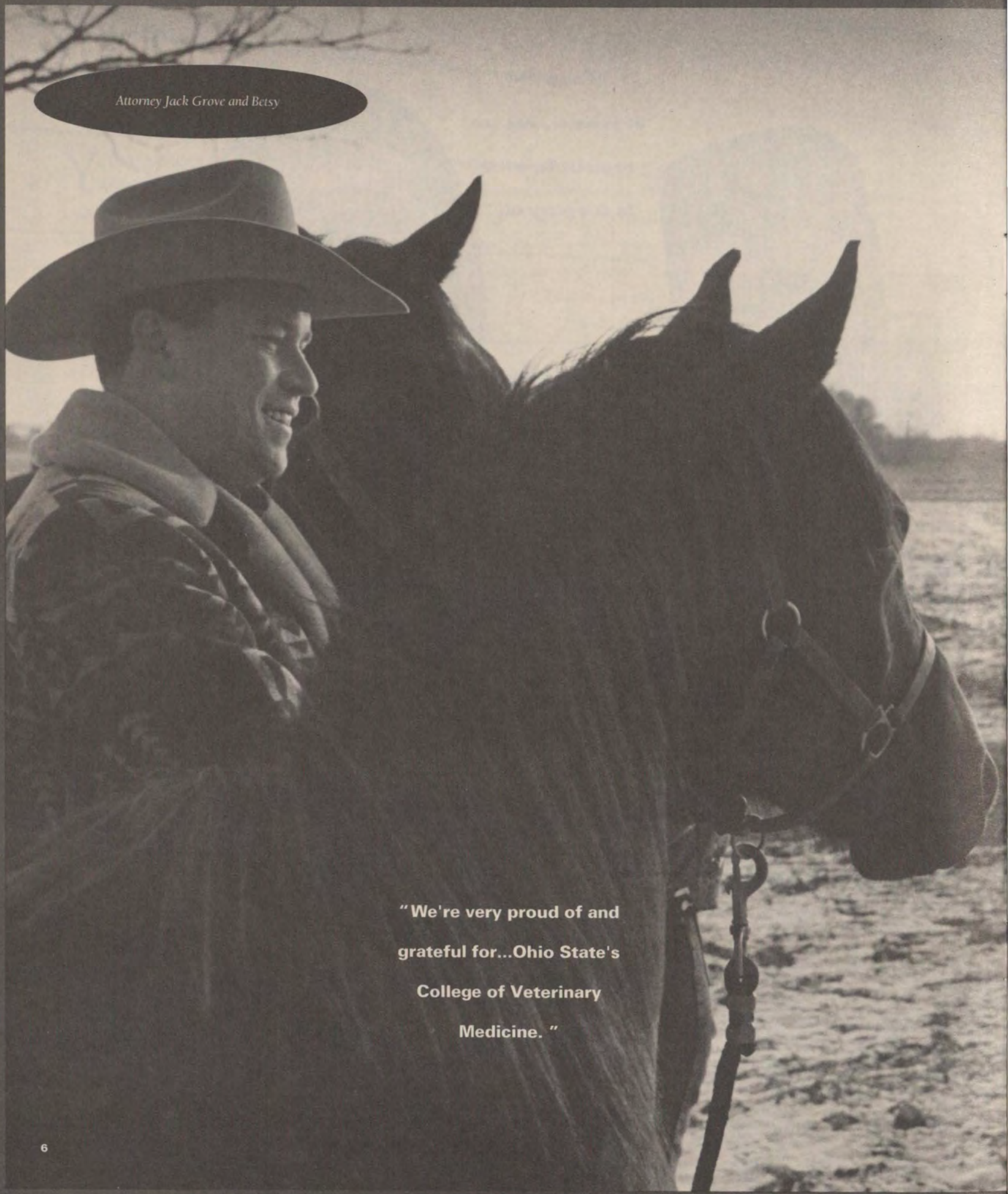
Today, students from low-income areas in Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Lorain, Toledo, and Youngstown are being identified in sixth grade and guided academically and socially toward successful completion of high school and admission into college.

Those who complete the program will be guaranteed admission to Ohio State with scholarships and college work-study funds to meet their financial needs.

For further information on the Young Scholars Program, contact: Dr. James J. Bishop, Academic Affairs Administration, 119A Independence Hall, The Ohio State University, Columbus, OH 43210-1210. Phone 614-292-3478



Young Scholar Eric Rollins and his mother, Kathleen



Attorney Jack Grove and Betsy

"We're very proud of and grateful for...Ohio State's College of Veterinary Medicine."

VETERINARY MEDICINE: GIVING A FOAL A FUTURE In a pastoral scene that almost did not happen, a carefree young colt prances beside her mother on a sunny autumn morning in southwestern Ohio. Born two months early, Betsy the colt is the most prematurely birthed foal to survive at the university's veterinary hospital.

As in similar situations in human medicine, first-time cases treated in crisis often generate protocols that save more lives. Procedures tested in this trauma are standard practice today for all premature foals born at or brought to the College of Veterinary Medicine.

Breeder Jack Grove is an attorney who, with his wife, Susan, owns Copper Fox Stables in Oxford. They breed quarter horses and sell them nationally. The day before the birth, Grove's veterinarian had placed the mother, Maggie, on hormones, hoping to preclude what would happen anyway.

"We came out in the morning and were shocked to see a new foal in the stall. She was beautiful, tiny, and trying hard to live," Grove recalls.

The Groves contacted Ohio State. Bring the mare and foal in together to the Equine Intensive Care Unit, he was told. Susan held Betsy on her lap in a blanket during the trip and carried her into the hospital.

An examination of the placenta showed a vestigial twin the size of a walnut. There was not enough placental area to support the remaining fetus to full term, hence the premature birth. Because of the foal's extremely delicate skin and soft bones, she was placed on a sheepskin in front of the mare. Her immature lungs required she be on a ventilator for the first 24 hours.

A veterinary team, led by Assistant Professor Joseph Bertone, kept a 24-hour watch as, every two or three days, a new problem would develop.

"They were exploring new territory," says Grove. After a week, Betsy could stand on her own, but was not tall enough to nurse. Maggie, who "had a terrific mothering instinct," did not reject or try to hurt the baby, who continued to be fed by a stomach tube.

At the two-month point, the Groves were not encouraged. "Betsy would still lapse into these trance-like sleeps. We visited her in the hospital and went away a little depressed. Then, a few days later, she suddenly pulled out of it," says Grove.

"A few days later" coincided with what would have been full term. It also coincided with treatment for low thyroid function and vitamin and mineral deficiencies. The case of Betsy the Colt reaffirmed, among other conclusions, the importance of vitamin E and selenium to a foal's development.

"Since most horses this young die within a matter of hours," says Bertone, "this was a great opportunity to see what sort of aggressive treatments can be used to save these animals." Betsy is a healthy yearling now. She has made a few follow-up visits, but is essentially normal.

"There is a great deal at stake in the horse-breeding business," Grove points out. "There are terrific initial capital investments, stud fees, medical fees and so forth. So it's extremely important that these horses be as healthy as possible. It's an economic as well as a personal loss when an animal such as Betsy dies or becomes incapacitated. We're very proud of and grateful for the excellent resources of Ohio State's College of Veterinary Medicine."

NEW EQUINE FACILITY TO OFFER FIRST-RATE SURGICAL, INTENSIVE CARE

Ohio State's College of Veterinary Medicine has long been known for its excellent care of horses. Now, with a new Equine Trauma and Critical Care Center set for completion in 1993, the university will become an even more complete center for equine surgery and intensive care.

"This new facility will enable us to offer state-of-the-art care to the area's important horse industry," says Ronald A. Wright, dean of the College of Veterinary Medicine. "Ohio sits in the middle of a large horse population over a several-state area that has an economic impact measurable in billions of dollars yearly."

For further information on the college, contact: Dr. Ronald A. Wright, Dean, College of Veterinary Medicine, The Ohio State University, 101 Sisson Hall, 1900 Coffey Road, Columbus, OH 43210-1092. Phone 614-292-8727

ENGINEERING RESEARCH CENTER: SHAPING THE MANUFACTURING ECONOMY. The term "net shape manufacturing" may be an unfamiliar one, but its results at a unique Ohio State engineering center could help American industry land contracts in the world marketplace.

Ohio State's Engineering Research Center for Net Shape Manufacturing opened in 1986, funded by the National Science Foundation. It is the only place of its kind in the nation, and its objective is to help American manufacturers gain a competitive edge in the fields of die casting, sheet metal forming, forging, polymer processing, and die design and manufacturing.

NSM creates computer programs that predict and equipment that tests the effects of stresses on materials. A material, usually shapeless or of a simple geometric shape, is then transformed into a useful part.

Explains Taylan Altan, director of the center, "We aid manufacturers in producing finished parts ready for assembly with a minimum of machining or grinding." The interaction cuts both ways as industries provide equipment, practical problems, and advice.

ARMCO, the 5,000-employee steel company in Middletown, is a center member and has worked with the center on the development of a computer program to predict the reaction of sheet metal when formed into a finished product, such as a car door.

"Our emphasis," says ARMCO research manager James Cordea, "is to reduce costs yet maintain the high quality of products by moving toward the finished product as quickly and with as few processing steps as possible. We need to provide automotive companies with the highest quality sheet and strip metal, and we need to guarantee that our metal will make the parts needed."

Eighty-five percent of Ohio's manufacturing is still done by companies with less than 500 employees, and one of the NSF's goals in establishing the center at Ohio State was to encourage research support of small manufacturers. DCD Technologies of Cleveland has such a relationship.

Its president, Walter E. Smith, employs 35 people to manufacture dies and molds for industry. His company situation illustrates the problems and solutions for small manufacturers making the manufacturing transition to computer-assisted design.

"Because I don't have the buying power, large companies that are marketing the latest technological advances wouldn't take the time with me," says Smith. "Having the resources of Ohio State's center has given me a technical tool I didn't have before."

The Net Shape Manufacturing center is a three-way cooperative adventure, benefiting industry, government, and the university. Through its work, industries exchange technological know-how with the university; smaller companies receive research and development help they could not afford elsewhere; college students get a look at practical and theoretical engineering, becoming well-prepared potential employees; and the competitive positions of companies in Ohio and throughout the nation are strengthened.

"Everything we do here has the benefit to our students as a main goal," says Altan. "The Center has several unique company and industry-sponsored fellowship programs aimed at qualified undergraduate students and graduate students who wish to pursue research in manufacturing.

"We want more and more young people to acquire the engineering skills so vital to our nation's future."

Center director Taylan Altan consults with Ph.D candidate Arun Vedhanayagam.

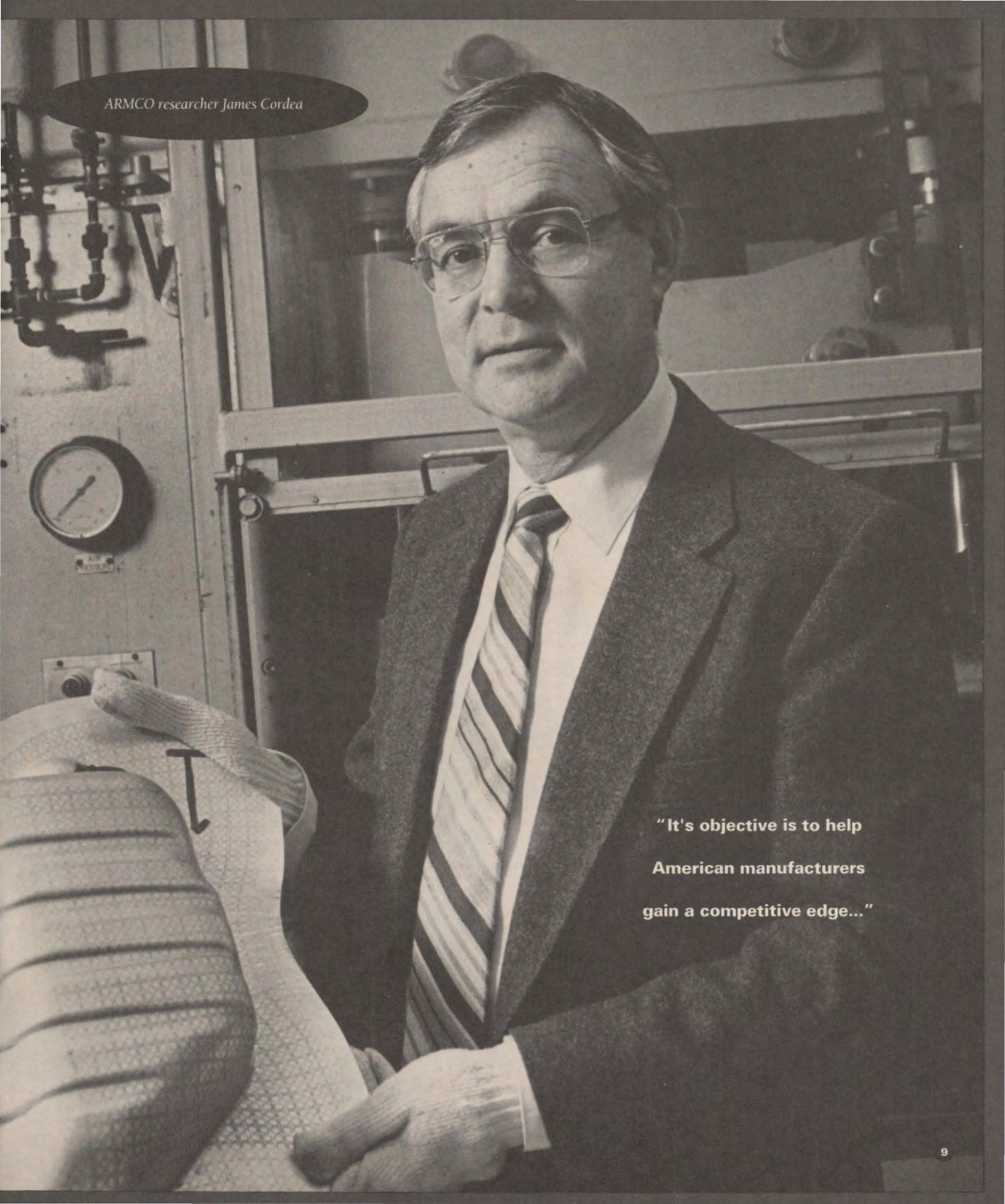
GRADUATE PROGRAMS WORK TO INCREASE NUMBERS OF ENGINEERS

The United States is facing a critical shortage of manufacturing engineers, and Ohio State is taking a leading role in catching up.

"Per capita, Japan graduates twice as many engineers as we do in the U.S., and Japanese companies employ large numbers of them at all levels of the production process," says Taylan Altan, director of Ohio State's Engineering Research Center for Net Shape Manufacturing. "Similarly, Germany has an extensive college system emphasizing production and manufacturing engineering.

"There are too few American students pursuing graduate degrees in engineering whose training and skills will benefit our industries. We need engineers who understand the importance of team work and self-expression, and who can communicate easily."

For more information on Net Shape Manufacturing, contact: Dr. Taylan Altan, Director, Engineering Research Center for Net Shape Manufacturing, The Ohio State University, 339 Baker Systems Engineering, 1971 Neil Avenue, Columbus, OH 43210-1210. Phone 614-292-5063


ARMCO researcher James Cordea
"It's objective is to help
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gain a competitive edge..."

"The quality of work the Wexner Center brings to Columbus is educating us all."

Choreographer/dancer Susan Hadley

THE WEXNER CENTER: AT THE EDGE OF THE ARTS. Searching for a new world to conquer, in 1989 Ohio State alumna Susan Hadley could scan the dance horizon from a lofty peak. A successful New York-based dancer and choreographer, she had worked with such legends as Senta Driver, Meredith Monk, and Mikhail Baryshnikov.

Her options for the future included companies in New York and Europe. But she chose instead to return to Columbus. She and her husband, Bradley Sowash, a highly regarded keyboardist and also an Ohio State graduate, had decided to search for an environment where they could collaborate professionally, remain in the mainstream of the progressive arts, and raise a family. Parenting on the road had little appeal. Neither did parenting in Manhattan.

The attraction for Hadley and Sowash was the Wexner Center for the Arts, at that time yet to be completed, its reputation-to-come still a matter of plans and aspirations.

Could Central Ohio jump onto the world stage enough to attract artists at the cutting edge of their disciplines? "I really felt the Wexner Center was going to help Columbus achieve a healthy range of arts," Hadley says. "And I believe it has.

"The quality of work the Wexner Center brings to Columbus is educating us all. I don't have to go to New York to keep abreast in my field. This is very critical to our being able to stay in Ohio."

It's a two-way street when a city's artistic offerings are rich enough that they inspire native top performers to remain in the community and others to resettle there. Cultural turnabout then is possible as the outside world gains regard for how Ohio's distinct character is expressed artistically.

Last spring, Hadley and Sowash presented the premiere of their dance/musical "Portraits in Blue" at the Wexner Center, which commissioned the work. They created a cafe atmosphere out of the two-story "black box" performing space. Drinks and snacks were sold and tables flanked the dance floor. Sowash's jazz ensemble performed and accompanied Hadley and the other dancers. All of it was orchestrated as a tight-knit, yet flowing interpretation of American jazz.

Then, on the strength of the Wexner Center's reputation, the show traveled to New York.

"Because the Wexner commissioned it, people in New York wanted to see it," says Hadley. "So they brought our dancers, musicians, and crew there in September, and we performed it for a week."

This program is a microcosm of the Wexner Center's purpose. Artists from around the world perform and display at the center, offering students, faculty, and arts patrons a range of work rarely seen in America outside of New York City. Through their exhibition and performances, the artists also often create employment for Ohio dancers, musicians, and others.

Everyone benefits, says Hadley. "This broad spectrum of artistic experience provides a vital context from which we can establish preferences, and not only artistic preferences. The essence of art is to open our hearts and minds to new ways of seeing the world. At its best, when we experience art either as creator or audience, we gain insight into our lives.

"A real artistic experience frequently makes us question our presumptions about the world. It helps heighten our capacity to feel and enlivens our senses. The Wexner Center is making a real contribution in providing these kinds of challenging encounters."

The Wexner Center for the Arts

CENTER EXPLORES ARTS BOUNDARIES TO EXPAND CULTURAL LITERACY

As an artistic and social crossroads, the Wexner Center for the Arts invites and thrives on community interaction.

"We're not just a palace where culture is displayed," says Robert Stearns, center director. "We are a forum for dialogue, where art is to be created and debated.

"Our mission as part of an academic community is to build a learning environment, one which expands our cultural literacy. Especially at a university, risk is required. This is why we exhibit and commission original work. Much of it stretches the borders of our understanding about what art is."

For further information on the Wexner Center, contact: Robert L. Stearns, Director, Wexner Center for the Arts, The Ohio State University, 1850 College Road, Columbus, OH, 43210-1122. Phone 614-292-0330

VISION SCREENING: ON THE ROAD AND IN THE SCHOOLS. Five days a week, students from the College of Optometry pile into a scarlet and gray mini-van for a road trip. But they are not headed for a tailgate party.

Instead, they are on a mission that brings quality vision care and screening to people across Ohio.

Aptly dubbed the BuckEYE Van, the year-old vehicle is a key part of the college's outreach program, bringing vision professionals and sophisticated screening equipment to people throughout Central Ohio. It also provides students with a wide variety of patient care experiences in non-traditional settings.

As "van outreach" is in its infancy at the college, outreach to schools is well into middle age.

This fall marked the 44th year that fourth-year optometry students screened youngsters in elementary schools throughout Central Ohio for vision problems. Some 2,400 children in 29 schools were checked for visual acuity, eye coordination, ocular health, and refractive state.

Ohio schools are now required by state law to screen the vision of their students each year, but the testing usually consists of reading an eye chart. The more thorough Ohio State procedure, according to Ruth Mickey, a school nurse for Reynoldsburg City Schools, is "able to pick up problems like farsightedness and muscle imbalance that we cannot detect."

When a vision problem is identified, both the school nurse and the parents or guardians are notified so that the child can be referred for appropriate treatment.

"Treating these problems early is so important," Mickey says, "especially for those children who are just beginning to read."

Both of these programs exemplify the way the service component of Ohio State's professional schools can complement existing services and agencies and can apply the newest technologies where problems exist.

The van program, points out Richard Hill, dean of the College of Optometry, is a new approach in part because of population shifts. "We used to have a clinic in downtown Columbus but, as the population moved, we found that we needed to go to the people who couldn't come to us."

The van carries students and equipment to vision screenings at area schools, Head Start programs, the School for the Deaf, nursing homes, and private homes—wherever there are mobility-limited patients. A full battery of equipment allows the students to offer quality vision care even under the most difficult conditions.

"We are able to maximize the number of patients our students can see by having the van on the road five days a week," says Hill. "Students will often leave at 5 or 6 in the morning and be back by noon for afternoon classes. Because of the van, our students are able to see a much wider variety of vision problems than they could otherwise. It's a real asset to their clinical experience."

The BuckEYE Van will continue its rounds through Central Ohio, enabling students to bring improved vision to thousands of patients who are unable to come to them. "I don't know what we'd do without it," says Hill. "It's been a godsend for our students and our patients."

The College of Optometry's BuckEYE Van

VISION SCREENING: FOCUSING ON THE EYES OF CHILDREN

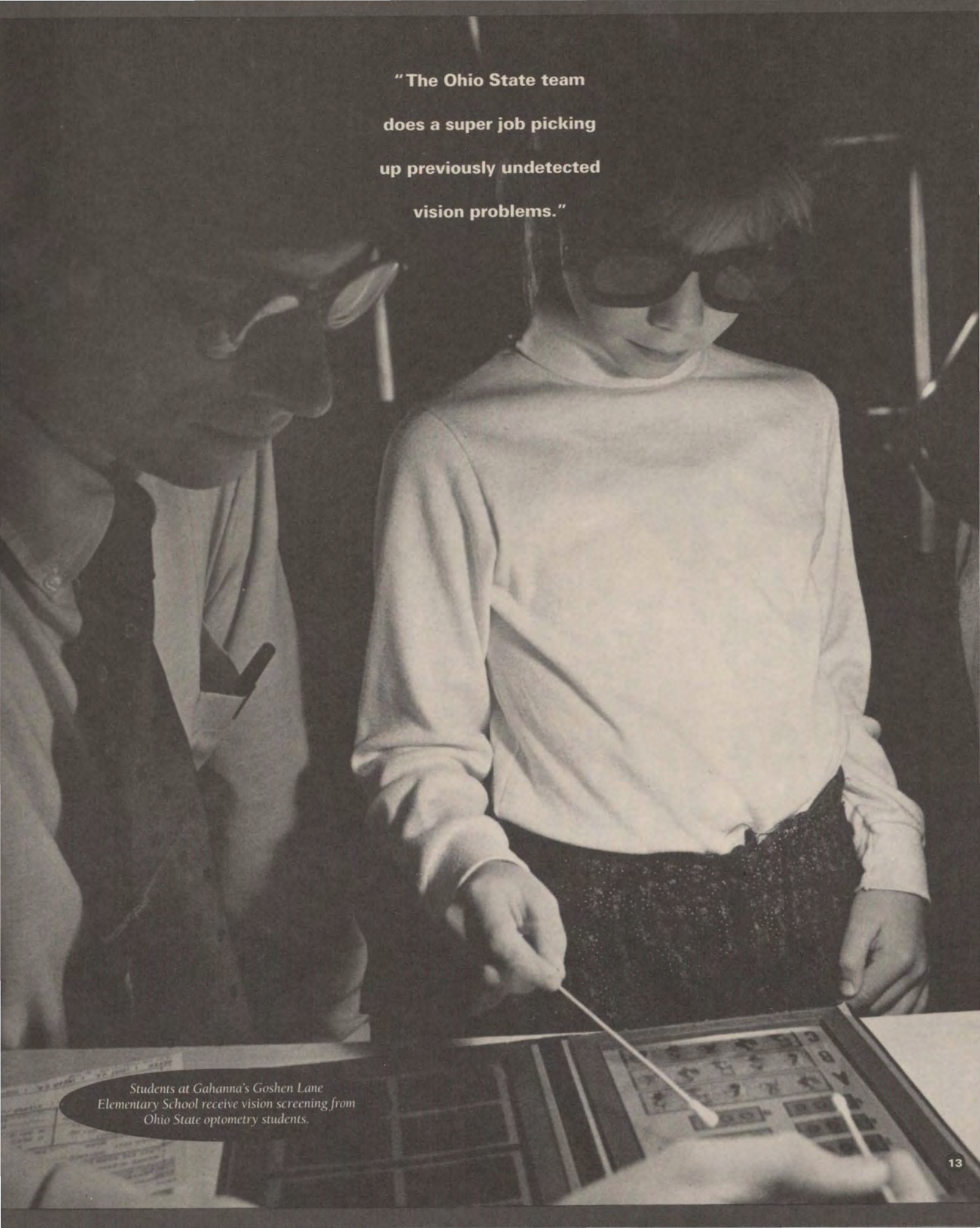
Detecting vision problems is especially important for students with learning problems. This is evident in the testing done at Columbus' Marburn Academy, a special school for students facing a variety of learning challenges.

In the first year of testing, 41 percent of Marburn's students failed—10 percent more than would be expected in the age group.

Says Suzanne Gottling, Marburn psychologist, "These are kids who are already having difficulty reading and processing information. So it's enormously important to fix poor vision. The Ohio State team does a super job picking up previously undetected vision problems."

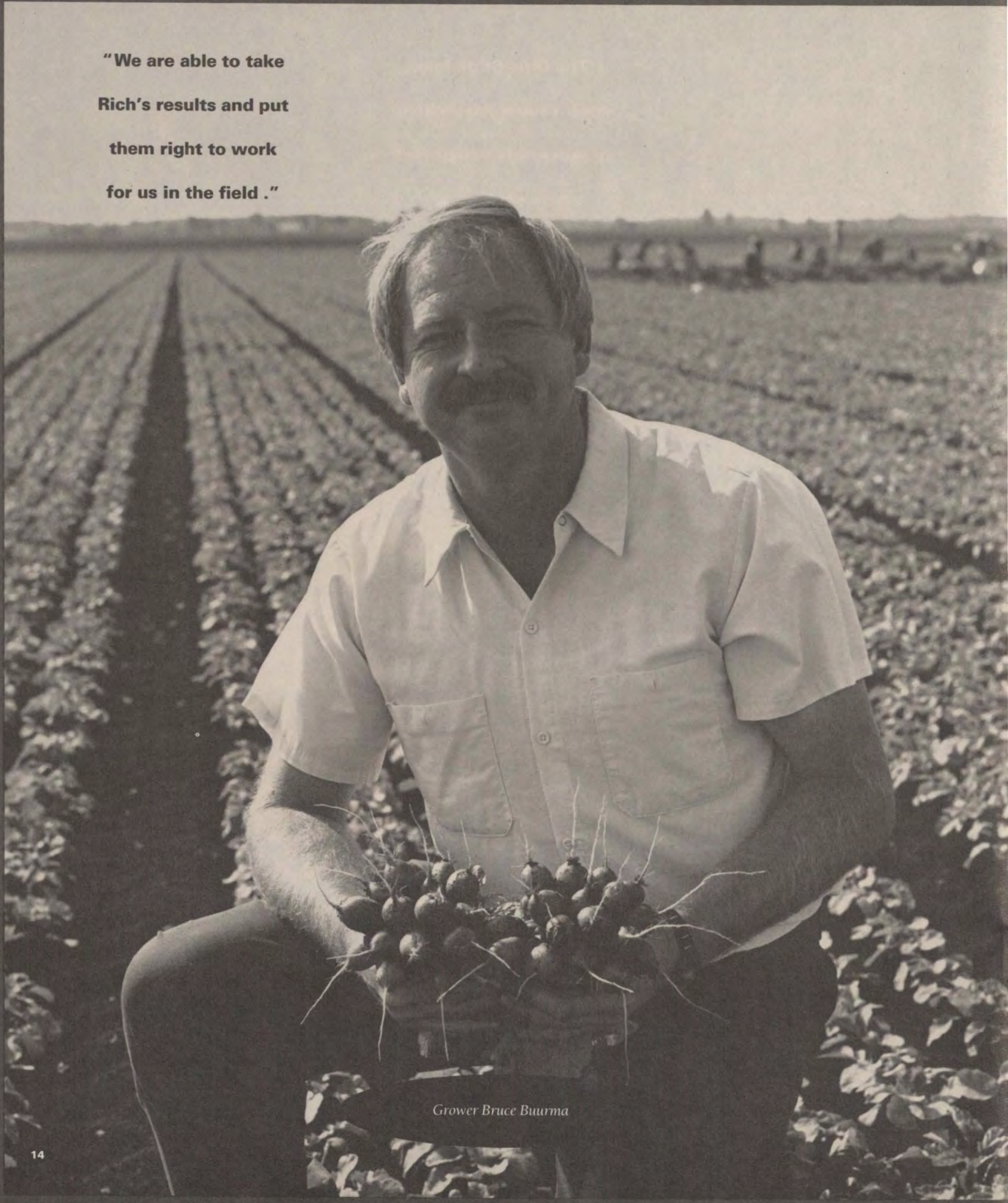
For further information on the College, contact: Dr. Richard Hill, Dean, College of Optometry, The Ohio State University, A-400 Starling Loving Hall, 320 West 10th Avenue, Columbus, OH 43210-1240. Phone 614-292-3246

"The Ohio State team does a super job picking up previously undetected vision problems."



Students at Gahanna's Goshen Lane Elementary School receive vision screening from Ohio State optometry students.

"We are able to take Rich's results and put them right to work for us in the field ."



Grower Bruce Buurma

Vegetables thrive in nutrient-rich muck.

COOPERATIVE EXTENSION TAKES GRASS-ROOTS APPROACH TO LOCAL DEVELOPMENT

Ohio State's Cooperative Extension Service works in a variety of areas in addition to the agricultural community. In a three-year period, Fayette County's unemployment rate fell from 12.5 to 5.6 percent as two companies considering moves elsewhere stayed, two other firms expanded, and four auto-parts producers and a pet-food manufacturer set up business there.

The change took place with the help of Bill Grunkemeyer, one of the university's extension agents in Fayette County. He helped start the Business Retention and Expansion Program tailored to the strengths and opportunities of the county. Cooperative Extension and the Ohio Department of Development co-sponsor such grass-roots strategic planning programs and, to date, have helped some 50 Ohio communities.

For further information on the service, contact: Dr. Robert Moser, Vice President for Agricultural Administration, The Ohio State University, 2120 Fyffe Road, Columbus, OH 43210-1010. Phone 614-292-6891

MUCK CROPS RESEARCH: SERVING OHIO'S SALAD BOWL. Welcome to Celeryville, where some of the heartiest salad vegetables in America are growing in a 3,000-acre "compost heap." Lettuce, onions, beets, parsley, celery, radishes, potatoes, and other vegetables thrive in a vibrant sea of green and red. Against the black earth of North Central Ohio, this flat landscape is alive with color and filled to the horizon with fresh food.

The farmland around this Huron County town is the most nutrient rich in Ohio, and area farmers produce $30 million worth of vegetables a year. The secret? Muck.

For soil to be considered muck, at least 40 percent must be decomposed organic matter. The organic content of most areas in Ohio averages less than 2 percent. But the land around Celeryville is 50 to 60 percent organic as a result of the plant debris deposited nearly 10,000 years ago when the glacier receded.

In the middle of this natural compost heap is an outpost of Ohio State's College of Agriculture. The Muck Crops Research Branch—part of the Ohio Agricultural Research and Development Center (OARDC) and the Cooperative Extension Service—helps farmers improve crop production and gives consumers more nutritious and inexpensive food.

Bruce Buurma, one of the local growers, believes the research branch has been a key element in keeping his farm ahead of the competition. "The research station can do on a small scale what we (area farmers) could never do—that is, experiment with varieties of crops until the best one finally emerges. We can't afford to plant 15 acres of one variety and lose it."

Buurma, a 1972 alumnus of Ohio State, is one of 15 members of the Buurma family of brothers, uncles, and cousins working in the muck. The Buurmas are one of four family farming operations still in business in the area. Bruce is in charge of food production, and is a member of the fourth generation of Buurmas growing everything for a salad except tomatoes. They are proud of their traditions, but are constantly updating methods of crop production, harvest, and sales.

Buurma's grandfather and great-grandfather helped drain this glacial cranberry bog in southern Huron County between the 1890s and 1920s, and turned it into rich farm- land. But because of its unusual organic quality, some crops have grown better than others. About 50 years ago, the families pooled their money and donated the land to Ohio State for the research station.

"Ten years ago, we could hardly grow green onions. The tops were too mushy and soft because we grew onions not well suited to this soil. The research station tested more than 30 varieties, and we have switched 100 percent of our onions to those that are the best. This area is now the leader in the Midwest in green onion production."

Heading the Muck Crops Research Branch is Rich Hassell, manager and research specialist with OARDC and the Cooperative Extension Service. His work has helped revolutionize production and care of the range of vegetables that now thrives in Celeryville, a community that has truly become Ohio's "salad bowl."

LAKE ERIE RESEARCH: STOPPING THE ZEBRA MUSSEL. In 1988, Bob Stevenson, manager of the Toledo water treatment plant, got a rare look inside the transmission pipes that carry the city's drinking water. These pipes begin at the shore of Lake Erie and wind nine miles to the plant. The 50-year-old lines had been drained for a quick structural examination.

During the check-up, Stevenson encountered a living organism that has dramatically changed his work life. It was on that spring day he saw his first zebra mussels—not many, about one per square meter—stuck onto the inside surface of the pipe. A mere two years later, the mussel encrustation was two and a half inches thick.

For many cities, Lake Erie is a lifeline. Fourteen million people get their drinking water from it. Power plants that dot the lake shore depend on its water flow through their pipes for cooling. Sport fishing is a billion dollar a year business. And millions of pounds of fish are sold commercially each year. Much is at stake.

Toledo now cleans its pipes by injecting a chlorine solution into the end of the water line, which kills the mussels but requires collecting and dumping several times a week.

At Ohio State, faculty are assisting industries in dealing with their particular problems and looking for long- term solutions. One of the more significant discoveries to date has been made by Susan Fisher, associate professor of entomology. She found that potassium phosphate in small doses, a relatively safe compound for humans and fish, will kill zebra mussels. When absorbed, it causes the mussel to retain water and "drown."

Dave Garton, assistant professor of zoology, has discovered that mussels with too much of the neurotransmitter serotonin in their systems spawn early, and has been studying how serotonin might trick the males into releasing sperm before the females release their eggs. Garton has been collaborating on this work with Jeffrey Ram of Wayne State University in Detroit. Their challenge is to find an effective way to attack zebra mussels without harming other organisms.

There are so many zebra mussels, and they multiply so swiftly, that control and containment are the goals. "It would be foolish to think we could get rid of them completely," says Fisher. "They are here to stay, and I'm afraid eventually they will infest most of the bodies of fresh water in the northern two-thirds of the United States. The best I believe we can do is control their numbers so that they don't dominate a lake's or river's ecosystem. They compete so well for food that our challenge is protecting other native wildlife.

"Possibly, we should begin thinking of zebra mussels as hazardous waste, and form guidelines for disposal with this in mind. They retain carcinogenic PCBs and dioxins dumped in the lake by nearby industry. Bottom feeders such as freshwater drum eat the mussels and the contamination intensity can grow." Game fish, such as the walleye, however, do not eat the mussel, and do not factor into the contamination equation.

But speaking of bottom feeders, a new fish, a goby, has been discovered in Lake Erie just this last year. Also native to the basins of the Black and Caspian seas, it crossed the Atlantic within the last couple of years.

And guess what? It eats zebra mussels. But unfortunately, it also will eat walleye eggs. So, the impact of the goby on the lake's ecosystem remains to be seen, and explored.

Lake Erie is threatened by zebra mussels.

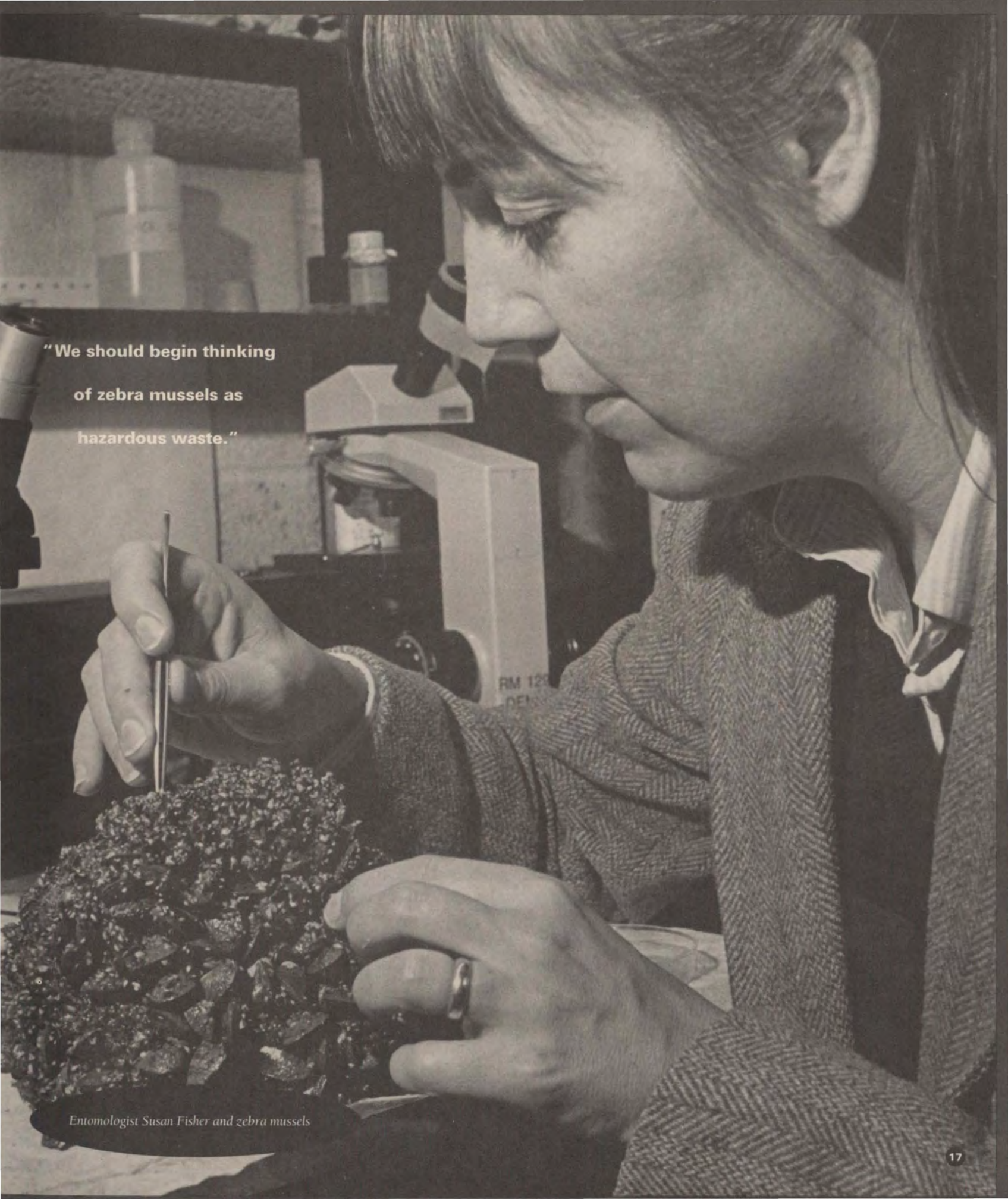
HARDY ZEBRA MUSSELS THRIVE IN LAKE ERIE FOLLOWING OCEAN CRUISE

Zebra mussels first entered North American waters in 1986. A cargo vessel from Europe apparently let out its ballast water in Lake St. Clair, near Detroit, and enough mussels were on board to begin colonization.

Originally from the Caspian Sea, zebra mussels predate the last Ice Age. But not until the early 1800s, when many canals were dug, did they spread widely across Europe.

Scientists at Ohio State saw them for the first time in 1988 in the western waters of Lake Erie. Dave Garton, an assistant professor in the Department of Zoology, remembers. "We saw just a very few, perhaps one per square meter. We brought them back for a positive identification from Dave Stansberry (professor emeritus of zoology and director of the zoology museum). He knew right away what they were, expressed near disbelief, and understood the vast implications of their presence."

For more information, contact Jeffrey Reutter, director, Ohio Sea Grant Program, The Ohio State University, 1541 Research Center, 1314 Kinnear Road, Columbus, OH 43212. Phone 614-292-8949.



Entomologist Susan Fisher and zebra mussels

Gerontologist Sharon Washington and her son, Kyle

Director of Dependent Care Services Judy Fountain visits Ohio State's Child Care Center.

CHILD CARE CENTER IS VITAL PART OF UNIVERSITY COMMUNITY

A desktop full of babies made the point to former Ohio State President Novice Fawcett 20 years ago. From the crawling, bawling bunch came the impetus for The Ohio State University Child Care Center.

"A group of Ohio State women students were so frustrated at the lack of child care on campus that they marched into President Fawcett's office and deposited their babies on his desk," recounts Judy Fountain, the university's director of dependent care services. "Needless to say, reaction was quick."

Today quality-of-life issues, such as child care availability, are seen as critical to the basic functions of the workplace. As work force and enrollment demographics have changed, universities have had to become more sensitive to how families lead their lives.

"We're proud," says Fountain, "of what we have been able to accomplish, and we will persist in our efforts to make Ohio State a better place to work and study."

For more information contact: Judy Fountain, Director of Dependent Care Services, The Ohio State University, 114 Archer House, 2130 Neil Avenue, Columbus, OH 43210. Phone 614-292-8993

CHILD CARE: FREEING WOMEN TO PURSUE THEIR DREAMS. It was an unlikely playground— wheelchairs and walkers, gray hair and grandparents. But that is just what the nursing home was in the eyes of young Sharon Washington.

The daughter of a public health nurse, today she is a Columbus physician specializing in geriatrics. But it was not too long ago that Washington trailed along with her mother as she visited elderly patients in rural upstate New York. "My brother would call these visits '007 time' because we practically had a 'license to kill,'" Washington laughs. "Everything we would do was cute, or so these older people thought. We'd get treats and hugs and plenty of attention."

Now that playground has become her workplace. Her early positive experiences with elderly people imbued Washington with the desire and resolve to become a physician. Upon her graduation from Cornell, she married and moved with her husband to Columbus, where he was studying at Ohio State's College of Veterinary Medicine. The marriage resulted in two children— Veronica and Kyle, now seven and four. At the time of her divorce, Washington was in medical school, and dependent care quickly became a major issue in her life.

"Space at Ohio State's Child Care Center was really tight," she remembers. "For example, the top student in my class was a woman, and Ohio State really wanted her to stay on in the residency program. She eventually chose a less prestigious program at another school where she could be assured of child care."

Washington points out that this is not an isolated incident. "It's unfortunate, but increasingly common, that programs and workplaces lose excellent workers because there is no provision made for child care."

In the mid 1980s, Manuel Tzagournis, vice president for health services and dean of the College of Medicine, recognized that adequate child care was becoming imperative to recruit and retain women in the College of Medicine and University Hospitals. He provided the necessary finances to increase the number of slots from 200 to 300 at the new Child Care Center, which opened in 1986. In addition, the new center was able to offer expanded hours of operation—6 a.m. to midnight—to accommodate the non-traditional working hours of hospital personnel.

And the State of Ohio is now enriched by numerous women professionals in the workplace because of the Child Care Center's availability.

"Ohio State's Child Care Center made an enormous difference in my life," says Washington. "Medical training is incredibly rigorous and demands great concentration. I was able to go about my work knowing that my children were in a stimulating environment.

"We're seeing people in their prime working years having to take time off from work to deal with their dependent children and parents. This is a problem that society is going to have to address, if for no other reason than manpower. And I think society is ready to address it as more and more women are getting into positions of influence. People have to listen now because the demand is there."

Washington looks forward to the day when care for elderly dependents is available at a support site at the university and elsewhere.

"Old age is the only minority to which everyone aspires. We all hope someone will take care of us in a sensitive and respectful manner when we're no longer able to get around."

PRIMARY CARE MEDICINE: THE ART OF HEALING ON LOCATION. Long before most people have had their morning cup of coffee, Glen Aukerman's day is well under way. At 5:30 a.m., he is on the road to hospital rounds in Lima, 30 miles away. At 8 a.m., he is back in his Jackson Center clinic in western Ohio. By now the clinic waiting room is packed with patients.

Industrial injuries from the surrounding area are some of the more common cases Aukerman sees, but he must be prepared for anything from headaches to heart attacks. As a family practice physician, he is the first—and often only—doctor his patients see, so his treatment and advice are critical. If there is time in the evening between family and professional commitments, he is off to civic meetings or involved in other community service projects.

Aukerman's day is typical of a primary care physician in rural Ohio. He has been caring for patients for 25 years in Jackson Center, a town of 1,200 people in Shelby County. The youngest of 10 children, he grew up in Eaton, Ohio. Following his 1964 graduation from Ohio State's College of Medicine and completion of a residency in Dayton, he opened his clinic.

"I practice rural medicine because I am committed to the people and values in this part of our state," says Aukerman. "I grew up in rural Ohio and can't imagine working or living anywhere else."

Other physicians in rural medicine across the nation feel many of the same community ties as Aukerman. But despite such interest, there still is a critical shortage of doctors choosing to practice in these communities. Faced with limited financial resources and isolation, many new doctors are avoiding rural areas in favor of bigger cities where the income and often the hours are more attractive.

Primary care physicians are those in family practice, general internal medicine, or pediatrics. Shelby County's 13 primary care physicians, for example, are about a third the number needed for the 45,000 people living there. The situation is virtually the same for the rest of rural Ohio, according to statistics compiled by Tennyson Williams, professor and former chairperson of Ohio State's Department of Family Medicine. Ideally, there should be one primary care physician for every 1,250 people. The statewide average is one for every 1,710; in rural Ohio, the average is one for every 2,200.

Aukerman began to tackle the issue of too few physicians in rural America as president last year of the American Academy of Family Physicians.

"It's a major issue of the academy, and we found that those most likely to practice in rural areas grew up there and can identify with their communities. We must direct physician recruitment efforts with that in mind."

Ohio State's College of Medicine was recognized recently when *U.S. News & World Report* ranked it as the fourth-best primary medical school in the nation. The college had 35 of its graduates enter family practice residencies in 1990—the fourth highest of the nation's medical schools granting the M.D. degree. Aukerman praises these efforts and the university's ongoing support of rural physicians.

"Ohio State is doing a tremendous job as a land-grant institution to help physicians—and their patients—in rural Ohio. Continuing medical education has brought faculty physicians to the rural areas. And I know that if I need backup for a difficult case, contact with an Ohio State specialist or subspecialist is just a phone call away."

Alice Frazier completed her residency program in family medicine at Ohio State.

PRIMARY CARE PROGRAM RANKS HIGH NATIONALLY FOR MEDICAL EDUCATION

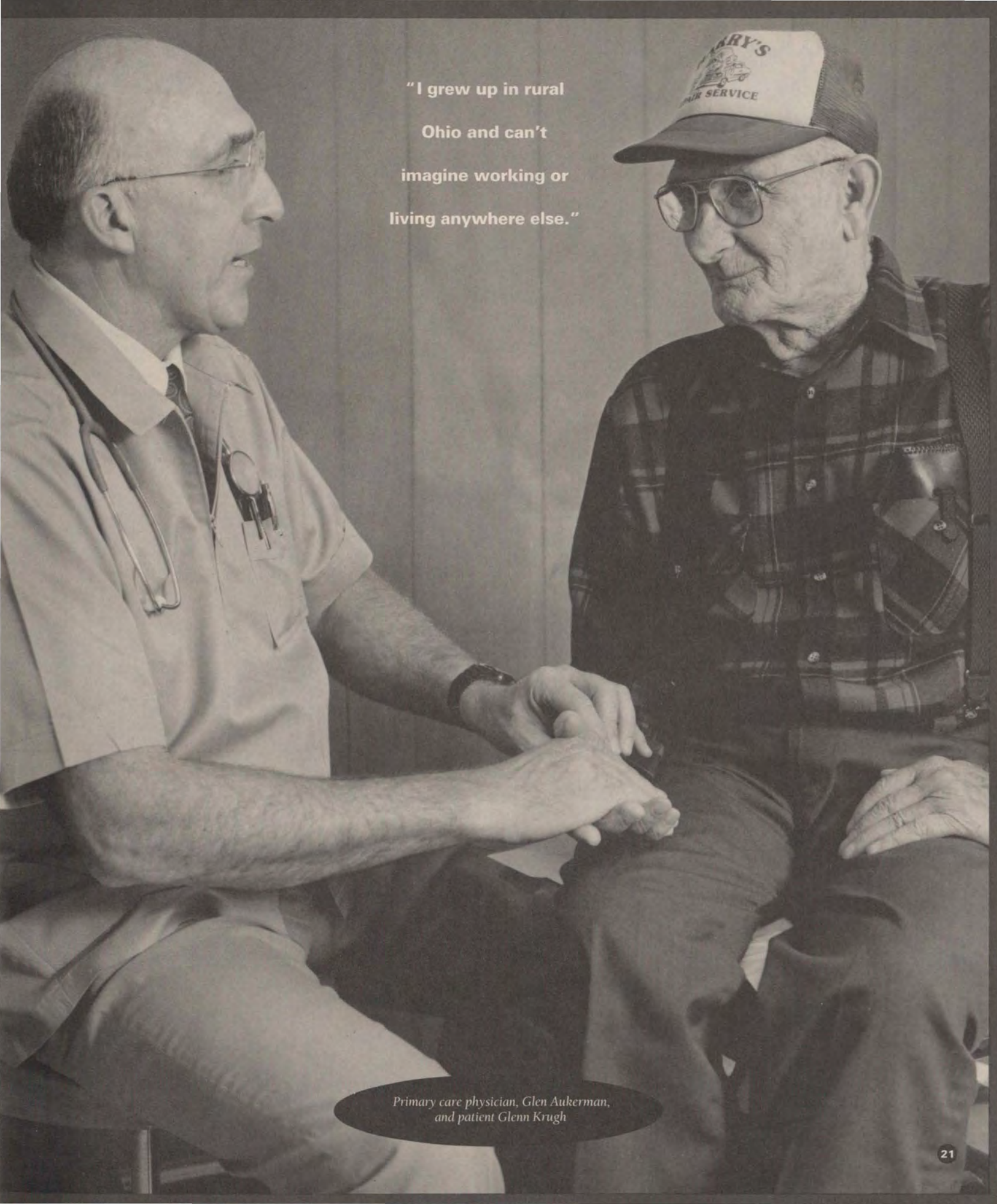
Fifteen years ago, Alice Frazier was one of the first graduates of Ohio State's new residency program in the Department of Family Medicine. And the values and training she took with her then still serve her well today.

"Our training was very patient-oriented," Frazier recalls. "As a third-year resident, I cared for patients daily in University Hospitals' Family Medicine Clinic.

I received training in such areas as dermatology and orthopedics, subspecialties which are important in a family medicine practice."

When Frazier established her practice in rural Sunbury, a small community north of Columbus, she felt well prepared to care for the health needs of her patients. "I joined the thousands of other primary care physicians whose training at Ohio State provided the foundation for quality medical care for the people of Ohio and the nation. I am very grateful for that opportunity."

For more information on the College of Medicine, contact: Dr. Manuel Tzagournis, Vice President for Health Services, The Ohio State University, 200A Meiling Hall, 370 West 9th Avenue, Columbus, OH 43210-1238. Phone 614-292-0926



Primary care physician, Glen Aukerman, and patient Glenn Krugh

"Knowing the culture and language gives you an enormous advantage."

Associate professor of anthropology Richard H. Moore plans an institute program with graduate student Akiyoshi Suzuki.

Workers at Ford's Batavia Transmission Plant learn about cultural differences through Ohio State's Institute of Japanese Studies.

OHIO STATE PROFESSORS SHARE EXPERTISE ON A GLOBAL LEVEL

Several Ohio State University faculty members across campus are working with virtually every country in the world to better understand their societies and to improve their economies. Here are just two examples. Professors from the colleges of Business and Agriculture, in cooperation with faculty from seven other Big Ten universities, are helping train professors in Czechoslovakia, Hungary, and Poland. They are teaching how to teach business through a $1 million grant from the U.S. Agency for International Development (AID). The funds were given by AID to the Midwest Universities Consortium for International Activities, based at Ohio State.

Executive Education, a program of the College of Business, taught 28 Korean business leaders, including corporate presidents and vice presidents, in an advanced management development program last summer. Korean professors in the United States developed and taught the program in Korean in Columbus.

For further information on the College of Business, contact: Dr. Joseph Alutto, Dean, College of Business, The Ohio State University, 126K Hagerty Hall, 1775 College Road, Columbus, OH 43210-1399. Phone 614-292-2666

JAPANESE STUDIES: BRIDGING THE COMMUNICATION GAP. An expansion of operations at Du Pont's Circleville plant, to involve more than 100 new employees, received a boost last year from the Institute for Japanese Studies at The Ohio State University.

In September, E. I. du Pont de Nemours & Company announced a joint venture with Teijin Ltd., a Japanese manufacturer of chemicals and film. The new company, Teijin-Du Pont Films, will manufacture and sell polyester film for audio and video tapes.

Du Pont and Teijin formed a joint team to do preliminary engineering for the facility. John Austin, the project manager at the Circleville plant, wanted Du Pont's team members to be sensitive to situations where communication problems could occur and contacted the Institute for help.

"I wanted to take our people through a familiarization of the differences between U.S. and Japanese business practices and, particularly, communication styles. It was a critical phase in engineering where communication gaps can cause severe difficulties. We wanted to recognize the ones we have and reduce the severity of them."

The institute, which began in 1985, arranged for Richard Moore, Ohio State associate professor of anthropology, and Fumiko Harada of the University of Findlay to conduct a workshop at the plant in Circleville.

There, American designers and engineers learned about Japanese culture, business style, and language as the professors covered areas from handling business cards and seating arrangements to appropriate formal protocols and informal business etiquette. Austin says Du Pont will likely arrange for more training as employees are hired and the plant opens in 1993. "We went through that two-day course, and it was very valuable. We've had excellent working relationships with the Japanese."

The Institute for Japanese Studies also has a contract to provide cultural and language training for employees of Ford Motor Company in Batavia, Ohio. Moore and the institute are now conducting a series of two-day seminars.

Ford's Batavia Transmission Plant is cooperating with Mazda Motor Company in its production facility in Hofu, Japan. The training will prepare some 80 line workers and 40 engineers from Ohio for visits to the Mazda plant in Japan. Topics include Japanese history, geography, and regionalism; communicating in Japanese; and Japanese business culture and etiquette.

Of the many services and programs the institute provides, "We're taking what was traditionally a liberal arts program and turning it more toward the business school," explains Bradley Richardson, director of the institute. Included is a "highly intensified language program allowing people to take business and Japanese, engineering and Japanese, or other combinations of majors.

"Most of the banks here in Columbus are looking for bilingual people because they want to be able to conduct business with the Japanese. Service companies want to make their clients feel comfortable." The program, started as a way to boost Ohio competitiveness, is funded by the Ohio Department of Development in cooperation with The Ohio State University.

"If you have the products," Richardson says, "trade will develop. But, if you want to establish a long-term presence, knowing the culture and the language gives you an enormous advantage. You can understand public opinion polls and market surveys. And, very importantly, you can negotiate with people in their own language."

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The university gratefully acknowledges the private donations that have made the production and printing of this report to the citizens of Ohio possible.

Design and Copy
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Photography
Photography provided by the Office of University Communications, with additional photography provided by University Hospitals Communications photographer Jim Brown. Susan Hadley's photograph provided by Will Shively/Shively Photography. Batavia Transmission Plant, provided by Transmission and Chassis Division, Ford Motor Company, Rick Cost photographer.

Printed on Esse, a recycled paper and printed with soy-based inks.


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